P4220
Spectronic Standards Set

DESCRIPTION

The P4220 Spectronic Standards Set contains five standards and two glass filters which provide an easy-to-use, reliable, and accurate way to verify performance of certain spectrophotometers manufactured by Thermo Fisher Scientific. The Spectronic Standards Set may also be suitable for performance verification of other UV-visible spectrophotometer makes and models.
NOTE: Spectronic Standards Set 1 was discontinued January 2015 and replaced with Spectronic Standards Set 2. Standards Set 1 will continue to be supported for re-certification.

APPLICATION(S)

The Spectronic Standards Set can be used to validate spectrophotometer performance on a specified frequency. The kit is intended to be used to verify a variety of performance attributes in the spectrophotometer:

- Neutral Density Glass standards used to assess photometric accuracy, photometric reproducibility, and photometric linearity in a spectrophotometer.
- The NIST certified wavelength (λ) standard is used to assess wavelength accuracy and reproducibility.
- The SRE filters are used to assess any impact of stray light on the instrument.
- The 0%T filter or any filter turned so that the metal sides are in the beam can be used to block the beam for a 0% T measurement.

SPECIFICATIONS

Physical Specifications:

GEX Part No.	Product Name(s)	Product Dimensions	Packaging Dimensions	Weight
P4220	Spectronic Standards Set 1 or Spectronic Standards Set 2	7.0” x 5.5” x 3.5”	15.0” x 10.0” x 7.0”	2.7 lbs.

Spectronic Standards Set 1

Included Components:

- NIST certified wavelength accuracy standard with peaks at approximately 400nm, 525nm and 780nm
- 10%T and 50%T Neutral Density Glass photometric standards (2 of each)
- 0%T standard
- Stray Radiant Energy filters at 220nm, 340nm, and 400nm
- Spare aluminum cuvette
- User Manual (CD)
- Calibration Certificate

Packaging:

Pelican brand plastic case or latchable wooden box with foam protection for holding each standard.

Spectronic Standards Set 2

Included Components:

- NIST certified wavelength accuracy standard with peaks at approximately 400nm, 525nm and 782nm
- 3%T, 10%T, 30%T and 50%T Neutral Density Glass photometric standards
- Stray Radiant Energy filters at 220nm and 400nm
- User Manual (CD)
- Calibration Certificate

Packaging:

Pelican brand latchable plastic case with foam protection for holding each standard with a label under the lid that summarizes the data on the calibration certificate for quick reference.

Re-certification:
The recommended interval for re-certification of the standards set is every 2 years. Users may order the service through GEX Customer Service using GEX Part # S4320 or from Thermo Fisher Scientific directly. The service includes cleaning of the glass filters. Damaged glass will be replaced for an additional cost. NOTE: Re-certification is equivalent to calibration. The SRE filters are not standards and cannot be re-certified; for this reason they do not appear on the calibration certificate.

Storage:
Store the set in a cool and dry location.

USAGE

See GEX Doc #100-254 – Genesys 20 Calibration and Maintenance and refer to the product User Manual from Thermo Fisher Scientific for details.

0% Transmittance:

- The Spectronic Standards Set may include the opaque 0%T standard which is used to test for light leaks in your spectrophotometer.
- NOTE: The Spectronic Standards Set 2 does not include the 0%T standard. Any filter in the set turned so that the metal sides are in the beam can be used to block the beam for a 0% T measurement.

Stray Radiant Energy:

- The filters have essentially zero transmittance at short wavelengths and near complete transmittance at longer wavelengths.
- Test wavelengths of 220, 340, and 400nm were chosen to correspond to the low energy points of both tungsten and deuterium lamps, readily revealing any stray light in both the visible and UV regions.
- NOTE: SRE filters are not standards and for this reason do not appear on the calibration certificate.
- NOTE: The Spectronic Standards Set 2 does not include the 340 SRE filter.

Wavelength Accuracy:

- The Wavelength Accuracy Standard has certified transmittance peaks near 400 nm, 525nm and 780nm. They are NIST traceable and certified.
- The symmetry of the peak means the tests of wavelength accuracy are independent of the spectral bandwidth (up to 20nm) of the instrument being tested.

Photometric Performance:

- Neutral density glass standards are suitable for checking the photometric reproducibility, photometric linearity, and photometric accuracy of a spectrophotometer at any of five wavelengths and up to an absorbance level of 1.5 .
- Manufacturer certified %T and Absorbance values are provided at 440nm, 465nm, 546.1nm, 590nm and 635nm.
- Because the transmittance of the glass is extremely constant with changes in wavelength near 590 nm, spectrophotometric errors can be distinguished from wavelength errors.
- No spectral bandwidth compensation is required.

PRODUCT PHOTO

Standards Set 1 (exterior)

Standards Set 1 (interior)

Standards Set 2 (exterior)

Standards Set 2 (interior)

PRECAUTIONS

Always keep the standards in their case when not in use and keep the cover closed and latched as much as possible. Minimize exposure of the standards to airborne contaminants like smoke, dust, oil vapor, or chemical fumes.

Handle all standards using only the metal frames. Do not touch the glass surfaces. Cleaning the glass filters is part of the re-certification service. See 'Re-certification' section above for details.

Refer to the User Manual for additional information and the full listing of precautions.

WARRANTY/GUARANTEE

Warranty:
90 day manufacturer's warranty.

Guarantee:
1 year GEX satisfaction guarantee. Product may be returned with or without reason within one year from the date of delivery.

REFERENCES

References:

- Spectronic Standards 1 User Manual
- Spectronic Standards 2 User Manual
- ISO 10012:2003 Measurement management systems – Requirements for measurement processes and measuring equipment.

To learn more about GEX products and services, visit www.gexcorp.com or contact a GEX representative at +1 303 400-9640.